

# **WIEB HLW COMMITTEE MEETING: OCT. 10-11, 2012, IN DENVER, CO MEETING SUMMARY**

## **Attendees:**

Arizona: Rich Baker; Brian Goretzki  
California: Joan Walter  
Colorado: Tammy Ottmer; Josh Downing  
Idaho: Bruce Larue  
Nebraska: Carla Schreiber  
Nevada: Bob Halstead; Fred Dilger  
New Mexico: Anne deLain Clark; Jodi Porter  
Oregon: Ken Niles  
Utah: Connie Nakahara

Nye County: Cash Jaszczak  
Eureka County: Rick Moore  
Southern States Energy Board: Chris Wells

## **Special Presenters:**

Alex Thrower, The Thrower Group  
Mike McBride, Van Ness Feldman  
Sam Fowler, U.S. Senate Energy Committee  
Earl Easton, U.S. Nuclear Regulatory Commission  
Corinne Macaluso, U.S. DOE-NE, Nuclear Fuels Storage and Transportation Project

## **WIEB:**

Doug Larson; Jim Williams; Richard McAllister; Alaine Ginocchio; Sharon Irwin.

## **Western Governors' Association:**

Rich Halvey

## **Wednesday October 10**

### Welcome and Introductions:

Ken Niles, WIEB HLW Committee Chairperson opened the meeting, asked attendees to introduce themselves (including background in state government and on nuclear waste topics), and outlined the agenda and its purpose.

### The Status of the Nuclear Waste Program in Reformulation:

#### **A. The Blue Ribbon Commission Findings and Recommendations**

(Alex Thrower, DOE/OCRWM, BRC Staff, The Thrower Group)

Thrower presented key recommendations of the Blue Ribbon Commission, including:

1. Consent-based siting.
2. A new organization devoted to SNF/HLW storage and disposal (i.e., current responsible agency, the DOE, is too diffuse).
3. Access to the Nuclear Waste Fund (currently, annual increases are \$900M in interest and \$750M in principal).
4. A repository should involve geological disposal; but the BRC did not address specific media or sites.
5. Consolidated storage.

6. Preparations for large-scale transportation of spent nuclear fuel/high-level waste need to begin now for eventual transport to consolidated storage and a repository.
7. Ongoing research & development.
8. U.S. leadership for management of nuclear waste internationally.

He also mentioned several other recommendations of the Blue Ribbon Commission process:

- The need for legislative changes (e.g., new siting process) that would require Amendments to the Nuclear Waste Policy Act of 1982;
- Changes in the approach to siting of new facilities (e.g., encouraging expressions of interest in siting a facility), and
- Changes in the approach to obtaining consent (e.g., substantial financial incentives).

Alex then moved to specific chapters of the Blue Ribbon Commission Report:

- Chapter 5, concerns consolidated storage. He noted that, in the event of a need to move spent nuclear fuel out of on-site storage, no option is currently available. For this reason, consolidated storage should precede a repository. He also noted that stranded fuel, which is spent nuclear fuel at shutdown sites, would best for demonstration purposes.
- Alex then spoke briefly about Chapter 6 (consent-based siting) prior to discussing Chapter 9, Transportation Issues. He mentioned that this chapter was not in the initial draft of the report. The National Academies' *Going The Distance?* report was deemed acceptable by most Blue Ribbon Commission members, although a re-examination of that report's recommendations was thought to be needed.

#### B. The Court Cases and Their Implications (Michael McBride, Van Ness Feldman):

Michael McBride began by noting that most cases involving nuclear waste have been tried in Courts of Appeal (especially the DC Circuit); few have gone to the Supreme Court. Two key cases that were decided in 2012 were NARUC v. DOE (June 1, 2012) and NY v. NRC (June 8, 2012); another, Aiken County et al. v. NRC, was argued on May 5, 2012.

In NARUC v. DOE (the fee case), the DC Circuit ruled that the DOE had not justified its nuclear waste fee adequately, but gave Secretary of Energy Chu 6 months to do so.

In NY v. NRC (the Waste Confidence case), the DC Circuit ruled that the NRC must issue an EIS or a FONSI that addresses two key issues: impacts of failing to develop a repository and impacts of failing to examine future dangers of storing spent nuclear fuel for 60, rather than 30, years on-site. In response to this decision, the NRC has decided not to issue new licenses in the near term.

Regarding Aiken County et al. v. NRC (the mandamus case), NRC maintains that it has insufficient funds (approximately \$10M) to re-open consideration of Yucca Mountain as a repository. If a "naked" Writ of Mandamus is issued by the DC Circuit (the likely outcome in the short term), it will probably be very general and give much deference to the NRC. A status report is due in December of 2012.

In a related matter, many settlements have been reached regarding the DOE's liability for not accepting spent nuclear fuel. Approximately 50% of suits filed have been settled. \$50B in liabilities are involved.

B. Legislation and Implications (Sam Fowler, Senate Energy Committee):

Senator Bingaman, along with Senators Alexander, Feinstein and Murkowski, initially led an effort to draft legislation based on the Blue Ribbon Commission recommendations. Key components of this legislation were that a new agency, similar to the Tennessee Valley Authority, would assume responsibility for nuclear waste and that ratepayer fees would enter a special fund.

Senators Alexander, Feinstein and Murkowski felt that this legislation would not be expeditious and desired a focus on consolidated storage. In response, Senator Bingaman modified the new agency structure to a director plus 3-member board; he also imposed a 10,000-ton limit on consolidated storage, at which point a repository would have to be sited. Nonetheless, the three other Senators did not support the revision and Senator Bingaman proceeded with a hearing for this legislation (S.3469). This hearing included two Blue Ribbon Commission members.

No further work on this legislation during the lame duck session is likely, and Senator Murkowski will likely assume responsibility for any such future legislation (Senator Bingaman is retiring).

C. The NRC Regulatory Framework (Earl Easton, NRC):

Earl Easton addressed a several key regulatory issues:

- Expedited movement from wet to dry storage: This issue concerns either loss of water from wet storage or movement of spent nuclear fuel from wet to dry storage prior to 5 years (at which time cooling transitions from active to passive). If this occurs, steam formation and/or ignition of zirconium can theoretically occur. The NRC conducted a study at Peach Bottom Atomic Power Station, and found that risk of zirconium igniting was minimally elevated with wet storage of less than five years. Although not yet published, this study suggests (pending cost-benefit analysis) that expedited movement of spent fuel from wet to dry storage could occur.
- Fire studies: Earl noted that railway transportation has a relatively high accident rate (whether expressed on an absolute basis or relative to total accidents) compared with highway transportation. This difference is relevant to fully engulfing fires, particularly those occurring in tunnels (as compared with those in open spaces).
- Package performance study: This study was terminated due to a lack of funding from the Nuclear Waste Fund. The NRC views this as not problematic because: a) Outdated Yucca Mountain casks were used in the testing process; b) There are limitations to impact testing; c) The study was more about public confidence than package licensing; d) Current modeling is superior because it now involves canister-sized spent fuel; e) Extended storage, which is a consideration because:
  - High-burnup fuel is now used more than low-burnup fuel;
  - Current fuel is more highly enriched;
  - Current fuel is in a reactor longer than in the past;

The implications of these trends are that cladding is now more brittle than in the past, dictating a need to place spent fuel in a canister instead of relying on cladding alone.

Earl also discussed the NY v. NRC (“Waste Confidence”) case and the NRC’s response. He noted that the EIS to be developed will address loss of institutional control, cask wear, probability of an accident (which increases at the time of cask movement to dry storage), and security. This EIS must be prepared in 2 years.

D. DOE-NE Initiatives, Current and Prospective (Corinne Macaluso, DOE-NE):

Corinne described the DOE's Nuclear Fuel Storage and Transportation Planning Project. She is responsible for the transportation component, and is guided by recommendations from the Blue Ribbon Commission and *Going The Distance?* reports. Regarding the transportation component, she mentioned:

- Transportation of orphan fuel;
- Engagement of state regional groups such as WIEB;
- Development of a national transportation plan;
- Communication products;
- Full-scale cask testing and standardized canister development;
- Assessment of transportation hardware needs;
- She also briefly addressed routing using models such as TRAGIS, RADTRAN and AAR, a model.

The 2006 Transportation Recommendations of the National Academies: Should They Be Implemented? What Implementation Questions and Issues Will Arise? What Should WIEB Do?

A. Cask Design and Testing (Bob Halstead, Nevada Agency for Nuclear Projects):

The importance of this topic is emphasized by two events, the Baltimore Rail Tunnel fire of 2001 and the MacArthur Maze fire of 2007. The former event was particularly sobering in that it could have involved a shipment from Calvert Cliffs Nuclear Power Plant. These events demonstrate the need for fully-engulfing, long-duration-fire cask testing and for full-scale package testing. No such testing has occurred since some impact testing at Sandia National Laboratory in the late 1970s. Regulatory (not "demonstration") cask testing includes:

- A 30-foot drop onto an unyielding surface;
- A 40-inch drop onto a spike;
- A 30-minute fire at 1475°F

Currently, 16 shipping casks are certified. Bob noted that cask testing actually comes in different flavors, chiefly testing for performance/licensing and demonstration testing for the public. He noted that the latter is flawed.

*Priorities.*

1. What is WIEB's view on the appropriate purpose and approach to cask testing?
2. Following up on #1, what happens if an accident occurs during demonstration cask testing?
3. The cask issue for orphan sites and a 50-year transportation program needs to be considered.

Bob also noted other things bearing upon cask safety. Examples include the fact that older fuel transportation decreases risk involved, and promulgation of a no-pass rule for railway traffic in tunnels.

B. Modal Choice and Acceptance Order (Bob Halstead, Nevada Agency for Nuclear Projects):

Bob Halstead began by noting that dedicated trains, those with buffer, security and emergency response cars, have approximately 5 times the transportation capacity of trucks. Each train can transport 3-5 casks; therefore, about 9500 train shipments would be required over a 50-year time period with a repository in place. If no repository were in place, 22,000 trains would be required. These values assume that 95% of shipments would occur by rail, with the remainder by truck.

This assumption may be flawed in that there are currently 28 commercial reactors with no direct rail access, and these reactors have 35% of the current spent nuclear fuel inventory. Bob also noted that there are 46 high-threat urban areas on current railway lines through which rail shipments would occur. Generally, he noted that the current position of WIEB is that dedicated railway transportation of spent nuclear fuel is the preferred mode.

*Priorities.*

1. Regarding the 28 commercial reactors without direct rail access, is there a funding mechanism for building the required infrastructure? This question also applies to shuttered reactors (e.g., Humboldt Bay).
2. What defines a dedicated train?
3. Which of two options is more desirable, shipping oldest spent nuclear fuel first or optimal cask loading (i.e., newer spent fuel in core of cask, older fuel surrounding core)?
4. While the current bias is to ship oldest spent fuel first, should criteria for prioritizing involve using rail transportation efficiently (i.e., reduce transportation mileage)?
5. Railway transportation routing and costs are likely to be vigorously contested.

C. Route Assessment/Selection (Fred Dilger, Consultant to Nevada Agency for Nuclear Projects)

Fred Dilger began by noting that risk is the product of probability (of interest to regulators) and consequences (of interest to stakeholders). He noted that while WIPP offers the best analog to our challenge, the WIEB strawman process of 1988, the National Academies' *Going The Distance?*, and the Volpe Report of 1998 offer valuable insights.

He praised the Volpe report, noting that it was a sensitivity analysis that modeled such variables as general population exposure, occupational worker exposure, and shipment duration. Fred commented that although the study needs to be updated, it is well done.

Another tool for routing is HM232, which evolved from chlorine shipments through Washington, DC. This tool permits routing to minimize both time and population exposure while taking 27 factors into account. Other modeling tools include TRAGIS (a 1970s tool), RADTRAN (its successor), Black Mountain (Fred's modeling tool), IRRIS (used by federal agencies), and the Rail Corridor Risk Management System.

Fred commented on future developments that may influence transportation, such as intelligent systems and containers. Railway systems, as well as container systems, are now using such intelligence, and it has the potential to revolutionize transportation of nuclear waste. Another possibility that may enhance transportation is the use of high-quality railway lines. This may emerge in the near future with the collapse of domestic transportation of coal on such rail lines.

*Priorities.*

1. Modeling routes using TRAGIS is passé. Much better modeling tools are now available, so the DOE should be advised to replace TRAGIS.
2. The states have a central role in routing, i.e. a) The WIEB strawman is a useful starting point for route selection; b) Persuading railways to use their highest-quality and safest lines, which are currently used for more profitable products such as coal; c) Deciding how to transport nuclear waste from multiple points

3. Intelligent casks are a distinct possibility in the near future. Such technology is improving rapidly, and WIEB should advise the DOE of this possibility. It may eliminate the current need for multiple inspections at multiple sites.

D. Transportation Operations (Anne deLain Clark, New Mexico Department of Energy, Minerals and Natural Resources; Tammy Ottmer, Colorado State Patrol)

Anne and Tammy first emphasized that “transportation operations” links to route assessment and selection, including the identification and mitigation of hazards (e.g. tunnels; oil gas storage), and state-local-tribal coordination as well as the NWPA focus on Section 180(c) emergency response planning and training. They also noted that implementation of Section 180(c) will be very expensive. Spent nuclear fuel at shuttered reactors offers an opportunity for preliminary field implementation of transportation operations.

Mike McBride observed that, with domestic coal train traffic decreasing, railways may be more open to spent nuclear fuel transportation. The DOE should contract with railways rather than using a tariff approach.

*Priorities.*

1. Ensure that the DOE is aware of WINB’s comments regarding Section 180c.
2. WIEB’s position on emergency preparedness and training may need to be revised, i.e. a) There are prerequisites to making progress on preparedness and training (e.g., routing); b) Railways need to be engaged on routing and emergency response; positive train control may be desirable to implement; c) The importance of border inspections needs to be balanced against occupational exposure; d) A focus on pilot projects involving shuttered reactors with spent fuel; e) Funding for individual functions should be awarded using a standardized system as per WIPP

**Thursday October 11**

The 2006 Transportation Recommendations of the National Academies (Cont.)

E. Security (Rich Baker, Arizona Radiation Regulatory Agency):

Rich Baker noted that the community of notification is complex, with 50 states and 1-2 agencies per state involved in nuclear waste transportation. He noted that the NRC has good regulations for transportation; he felt that DOE-overseen transportation is more problematic (although he mentioned that the DOE will likely comply with NRC regulations). He also noted that security levels at the NRC determine what information is relayed to states and personnel with varying levels of clearance. Rich suggested that independent security analyses should be done once transportation routes are identified. Finally, Rich mentioned that the value of Fusion Centers in addressing the threat environment is variable across states.

*Priorities.*

1. Given that interstate coordination of nuclear waste transportation is difficult (organizational differences, different levels of security clearance, etc), states should develop a communication tree with each other.
2. Provide NRC with pre-planning coordination recommendations that could be put into NRC guidance to its licensees.
3. Request that the DOE (or its successor agency) confirm that it will comply with the forthcoming NRC rule concerning security.
4. A meeting of state/government representatives at WIEB is needed to address security.

F. Organizational Structure (Connie Nakahara, Utah Department of Environmental Quality): Connie Nakahara briefly compared the NAS recommendations, the Blue Ribbon Commission recommendations, and Senator Bingaman's proposed bill (S.3469) for organizational structure. She also mentioned Jim Williams' draft of a DOE/SRG vision statement for the development and operation of transportation systems (see below under *Priorities*). Connie also noted that while occupational worker exposure limits have been progressively reduced from 5000 to 2000 to 500 mrem/year, the perceived risk, rather than actual risk, may be most important to the general public.

*Priorities.*

The following should be added to Jim Williams' draft of a DOE/SRG vision statement:

1. Reference to existing state policies (e.g., Western Governors Association resolutions).
2. The Blue Ribbon Commission's findings and recommendations on successful transportation practices (Chapter 9).
3. Revise the term "best practice".
4. Include mention of both perceived and actual risk.

Roundtable Discussion:

*Arizona.* Rich Baker, representing the Arizona Radiation Regulatory Agency, reported that the Palo Verde Nuclear Generating Station has been operating problem-free. He also reported that the University of Arizona recently made a fuel shipment to Idaho. A multi-government level Ingestion Path Zone exercise following a mock release from a commercial nuclear reactor was successful. FEMA requires such an exercise every 5 years.

*California.* Joan Walter of the California Energy Commission first reported on the Diablo Canyon Nuclear Power Plant. Surveys to assess seismic risk to this plant are needed, but potential impacts to wildlife have made these surveys controversial. Nonetheless, data from these surveys are important in that they may indicate the need for retrofits to the plant, which in turn may be required for re-licensing of the facility.

Joan next reported on the San Onofre Nuclear Generating Station. Seismic surveys are also needed for this facility; that offshore areas to be surveyed are exclusively federal waters will likely make surveying less controversial than for Diablo Canyon. The difficulties of this plant are well-chronicled. Fuel has been offloaded from Unit 3, the more heavily-damaged unit (steam tube wear). For Unit 2, operator Southern California Edison has responded to the NRC and has proposed re-starting the unit. The issue of ratepayers continuing to pay for this non-operating facility remains in the news.

*Colorado.* Tammy Ottmer of the Colorado State Patrol reported that spent nuclear fuel from Fort St. Vrain remains in Platteville. Colorado may sue the DOE, as have other states, for breach of contract if spent nuclear fuel acceptance by the DOE will not begin in 2035.

*Idaho.* Bruce LaRue, of Idaho's Department of Environmental Quality INL Oversight Program, reported on spent nuclear fuel and high level waste shipments from Idaho to Nevada, Utah and New Mexico (WIPP).

*Nebraska.* Carla Schreiber of Nebraska State Patrol reported that the NRC will conduct dispatch training in Nebraska to test its communication plan.

*New Mexico.* Jodi Porter, of New Mexico Department of Energy, Minerals and Natural Resources, reported on increased shipments from Los Alamos National Laboratories to WIPP. She also mentioned rumors of applications for consolidated storage and repository (high-level waste only) facilities, potentially to be submitted in 2014-2015.

*Nevada.* Bob Halstead of the Nevada Agency for Nuclear Projects noted that the disposal site for low-level waste, Nevada National Security Site, has its EIS due later this year. <sup>233</sup>U is being shipped from Oak Ridge to the Device Assembly Facility this year. EPA-style assessment of weapons program sites in Nevada is underway, but may be victim of sequestration in DC. Yucca Mountain remains in the news. The state and Nye County are opposed, but licensing for a repository may re-start.

*Utah.* Connie Nakahara, of the Utah Department of Environmental Quality, noted that a key development in the past year has been an audit of state inspections of radioactive waste. Due to lack of funding, the state has not been sampling waste shipments. This lack of sampling will likely be corrected. The Private Fuel Storage/tribe relationship has also been an issue in the past year.

*Oregon/Washington.* Ken Niles, of the Oregon Department of Energy, reported that uranium hexafluoride is being shipped from Portsmouth to Hanford; a supplemental EIS is involved. The Columbia Generating Station (in Richland, WA) has been re-licensed. Ken spoke at length about the Hanford waste treatment plant. It is behind schedule and over-budget due to a variety of design and technical problems. Regarding the Hanford underground storage tanks, the single-shelled tanks have exhibited a high incidence of leaking. Building new, double-shelled tanks will be very costly (\$200M/tank) and will require state permits (RCRA-compliant). Ken also mentioned having conducted a series of 4 public information meetings, on nuclear waste transportation, to increase public understanding.

*Eureka County, Nevada.* Rick Moore reported that the county continues to fund him to attend meetings because they wish to maintain a voice regarding railway routing.

*NRC.* Earl Easton mentioned 2 upcoming conferences:

- PATRAM: Involving packaging/transportation of nuclear materials, to be held in San Francisco in August, 2013. This is an international meeting.
- A NEI dry storage forum in May, 2013.

#### Next Meeting

The date and place for the next WIEB HLE Committee meeting was discussed but not resolved. The NTSF meeting (re which SRG meetings can be “piggy-backed”) is scheduled for May 13-17 in Buffalo NY. On the other hand, Buffalo is a long trip for many in the West, and the more proactive WIEB HLW Committee approach may require more discussion-decision time than is available in a piggy-backed meeting. Considering that shutdown sites (among other issues) may need focused attention at our next WIEB meeting, Ken Niles suggested a meeting in Portland, either a few weeks before or a few weeks after NTSF. Ken, Jim and Doug will consider further and offer suggestions for Committee consideration.